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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/687,759

10/20/2003

Yu-Cheng Chen

4006-270

9603

570

7590

10/20/2006

AKIN GUMP STRAUSS HAUER & FELD L.L.P.  
ONE COMMERCE SQUARE  
2005 MARKET STREET, SUITE 2200  
PHILADELPHIA, PA 19103

EXAMINER

NGUYEN, THANH NHAN P

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/687,759

Applicant(s)

CHEN ET AL.

Examiner

(Nancy) Thanh-Nhan P. Nguyen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 August 2006.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12, 15-19, 22-26, 29 and 30 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 12, 15-19, 22-26, 29 and 30 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☒ All b) ☐ Some \* c) ☐ None of:  
 1. ☒ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 5) ☐ Notice of Informal Patent Application  
 6) ☒ Other: Examiner's attachment.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 12, 15-19, 22-26, 29 & 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chartier (4,938,567) in view of Irwin, Jr. et al (6,491,215).**

**Regarding claims 19, 22 & 23, Chartier discloses a matrix structure of a display, comprising:**

a substrate (1); and

a plurality of transistors (T11, T12, T13) arranged in a matrix on the substrate, each of the transistors is disposed near an intersection of a gate line extending in a first direction and a data line extending in a second direction orthogonal to the first direction and not disposed on the gate line or data line,

wherein the gate line includes:

a first main line (LG) formed in a first conductive layer; and

a plurality of first branch lines (lg1) formed in a second conductive layer spaced from the first conductive layer, each of the first branch lines having a first length and being separated from an adjacent first branch line by a first distance; and

the data line includes:

a second main line (CL) formed in the second conductive layer; and

a plurality of second branch lines (col1, col2) formed in the first conductive layer, each of the second branch lines having a second length and being separated from each adjacent second branch line by a second distance, [figs. 1-4, and 12];

Even though Chartier lacks disclosure of wherein a first ratio of the first length to the first distance and a second ratio of the second length to the second distance are greater than or equal to approximately 2 in order to reduce the resistance of the matrix structure of the display, the main point of this limitation is about the relation of resistance inversely proportional to the area, as Irwin, Jr. et al discloses, [col. 27, lines 1-7]. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to pick out the range 2 to 9 for the benefit of getting the desired resistance from the multilayer.

**Regarding claim 24**, Chartier discloses the matrix structure of the display further comprising a plurality of contact plugs (CX3) for connecting the first branch lines to the first main line, [fig. 12].

**Regarding claim 25**, Chartier discloses the matrix structure of the display further comprising a plurality of contact plugs (CX4, CX5) for connecting the second branch lines to the second main line, [fig. 12].

**Claim 12** is met the discussion regarding claim 19 rejection above.

**Claim 15** is met the discussion regarding claims 12 and 22 rejection above.

**Claim 16** is met the discussion regarding claims 12 and 23 rejection above.

**Claim 17** is met the discussion regarding claims 12 and 24 rejection above.

**Claim 18** is met the discussion regarding claims 12 and 25 rejection above.

**Claim 26** is met the discussion regarding to claim 19 rejection above except having an additional limitation, which is forming an insulating layer on the patterned first conductive layer, [fig. 5 – element 2].

**Claim 29** is met the discussion regarding claims 26 and 22 rejection above.

### ***Response to Arguments***

Applicant's arguments filed 8/7/2006 have been fully considered but they are not persuasive.

*Applicants' argument:* On the Remarks, page 6, Chartier vs. the present invention: advantages in Chartier reference are "redundancy in lines and columns which are doubled to avoid breaks" while an object of the present invention is "to reduce the resistance of the wire". Further, "Chartier does not disclose, teach or suggest the use of multi-layered wires to reduce the resistance in a wire structure, nor does Chartier disclose, teach or suggest a larger  $b/a$  ratio to reduce the resistance of the overall wire."

*Examiner's answer:* Even though Chartier only discloses redundancy in lines and columns which are doubled to avoid breaks, and does not explicitly disclose the use of multi-layer wires to reduce the resistance in a wire structure, it would have been obvious to one ordinary skill in the art to understand that one structure of the device could have multi different purposes or advantages. Further, please refer to the attachment (which Examiner provided) for explaining why the larger  $b/a$  ratio the wire has, the smaller resistance the overall wire gets by base on a very well known formula about the relationship between the resistance and area.

Applicants' argument: On page 7, Irwin reference: "this text portion of Irwin merely describes the same formula for calculating resistance of a material that is also described on page 6, lines 6-10 of the present specification..."

Examiner's answer: Irwin formula on col. 27, line 1 shows the well-known formula  $R = \rho (L/A)$  for calculating the resistance of a material. There is no limited to any material to apply this formula for calculating the resistance. Also, please refer to the attachment (which Examiner provided to explain more about the relationship between the resistance and area).

***Response to Request for Interview***

***Prior to Formal Action on Amendment***

The request has been acknowledged.

However, if applicants needed to have an Interview prior to formal action on amendment, applicants should have contacted the Examiner by telephone instead of accompanying the "Initiated Interview Requested Form" in the response, which Examiner was not aware of. Examiner apologize for not granting the interview requested this time since the time Examiner discovered about the request was too close to the date that needs to respond to the Amendment.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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(Nancy) Thanh-Nhan P Nguyen

Examiner

Art Unit 2871



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